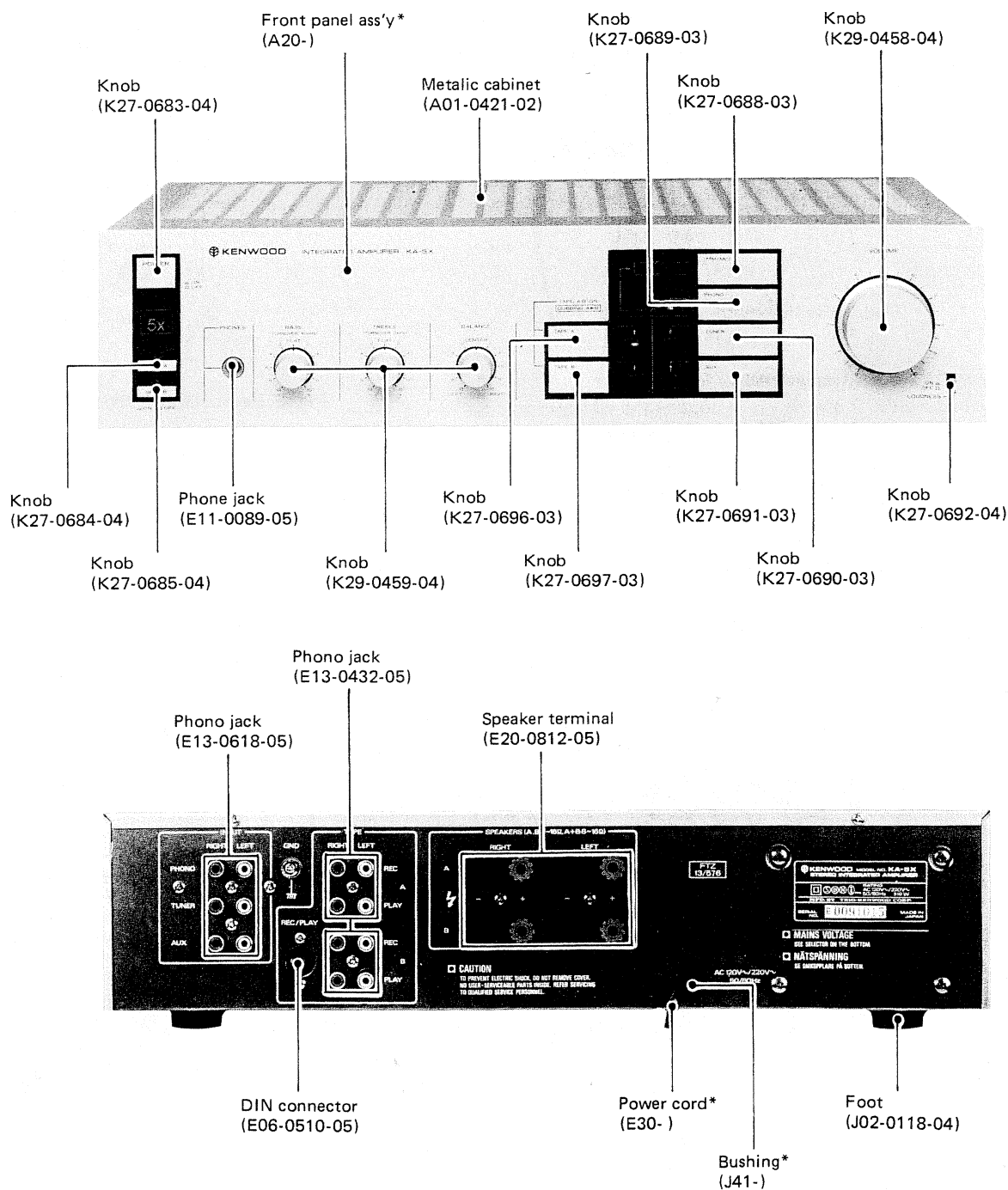




KA-5X

INTEGRATED AMPLIFIER



* Refer to Parts List on page 8.

DISASSEMBLY FOR REPAIR

Removing the LED Board

- 1) Pull the board in the direction indicated by arrow ② while pressing the retaining hooks in the direction indicated by arrows ①

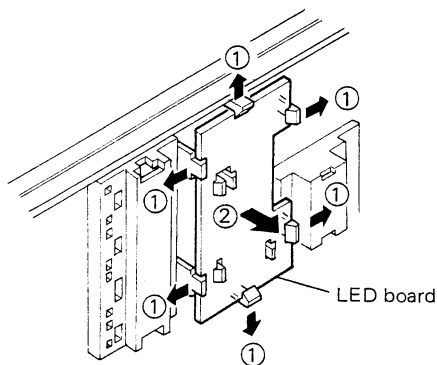


Fig. 1 Removing the LED Board

Power Transistor Replacement

- 1) Remove the 2 screws (①) holding the varistors and the 2 screws (②) holding the heat sink and mounting hardware.
- 2) Press the radiator fins of the heat sink above the projection attached to its bottom in the direction indicated by arrow ③ to slide the projection out from under the PC board ; then lift the entire heat sink upward.
- 3) The 4 power transistors will be removed from their sockets as the heat sink is lifted upward.

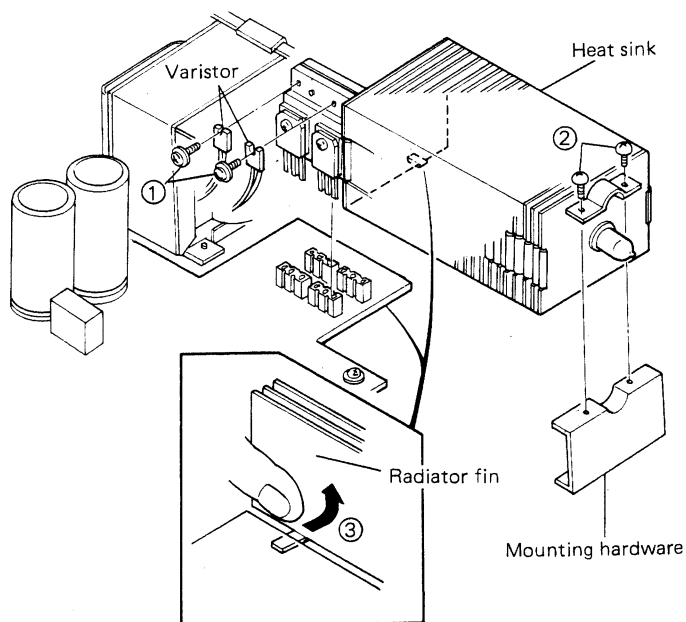


Fig. 2 Power Transistor Replacement

Removing the Extension Shafts

- 1) Slide the shaft in the direction indicated by arrow ② while lightly pressing the retaining hook in the direction indicated by arrow ①

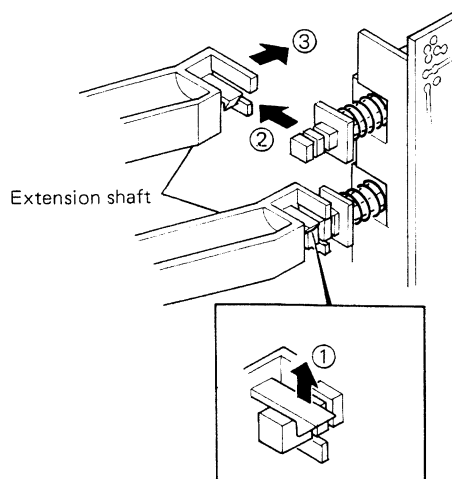


Fig. 3 Removing the Extension Shafts

Removing the Knob

- 1) Press the retaining hooks in the direction indicated by arrows ①

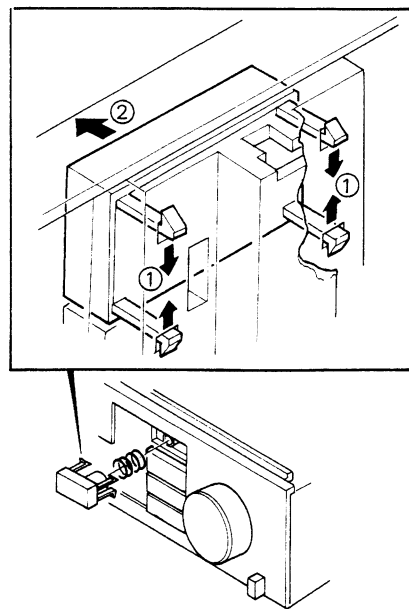


Fig. 4 Removing the Knob

ADJUSTMENT/REGLAGES/ABGLEICH

INTERNAL CIRCUIT OF AN7060

The IC (AN7060) internal circuit are shown in the figure on the right.

Note:

If the plug of this unit is inserted in reverse, it will immediately damage the unit.

If it is damaged, further damage will be caused to the adjacent circuits. So be very careful.

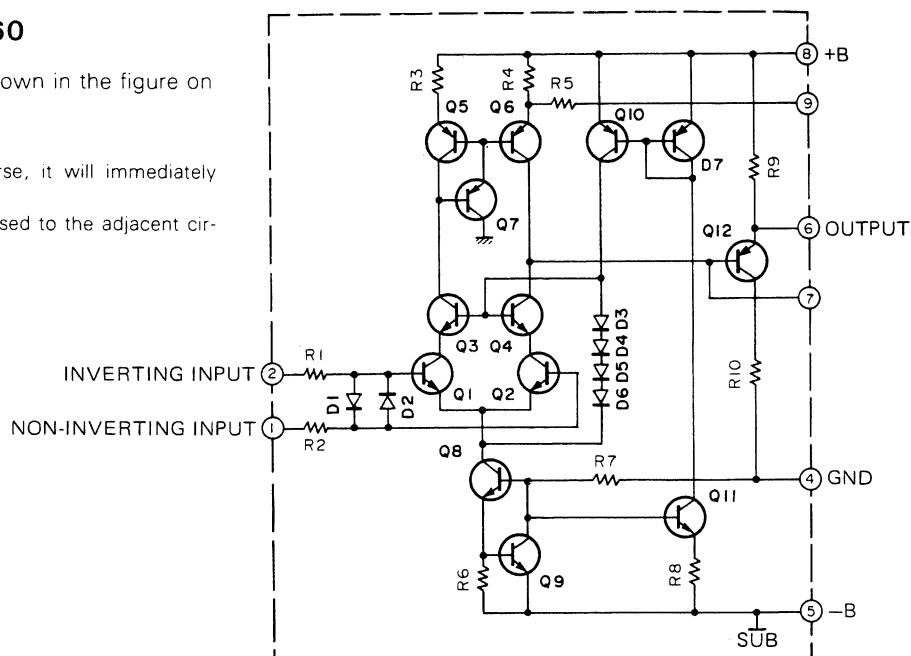


Fig. 5 Internal Circuit of AN7060

IDLE CURRENT ADJUSTMENT (BIAS CURRENT ADJUSTMENT)

1. Turn the volume knob fully counterclockwise.
2. Connect a DC voltmeter to both pins of R29 (R30) of the audio unit (X09-1800-10). (See the figure below.)
3. Turn the power on and wait 5 minutes.
4. Adjust VR5 (VR6) so that the DC voltmeter reads 18 ~ 22 mV.

Note:

Since a heat pipe is used in the heat radiator of the KA-5X, be sure that the unit is level when making the adjustment.

BLINDSTROMEINSTELLUNG (SIGNALLOSER ZUSTAND) (VORSPANNUNGSSTROM-EINSTELLUNG)

1. Den Lautstärkesteller ganz nach links drehen.
2. Einen Gleichspannungsmesser an beide Stifte von R29 (R30) des Audiogerätes (X09-1800-10) anschließen. (Siehe nachstehende Zeichnung.)
3. Die Stromversorgung einschalten und 5 Minuten warten.
4. VR5 (VR6) so einstellen, daß der Gleichstrommesser 18 ~ 22 mV anzeigt.

Hinweis:

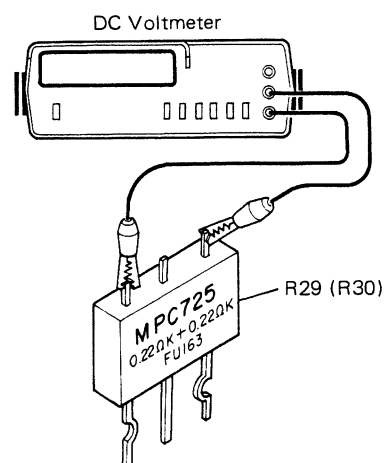
Da im Wärmestrahler des KA-5X eine Heat Pipe verwendet wird, sollte man beim Einstellen unbedingt auf waagerechte Stellung des Gerätes achten.

RÉGLAGE DU COURANT LIBRE (SANS SIGNAL) (RÉGLAGE DU COURANT DE POLARISATION)

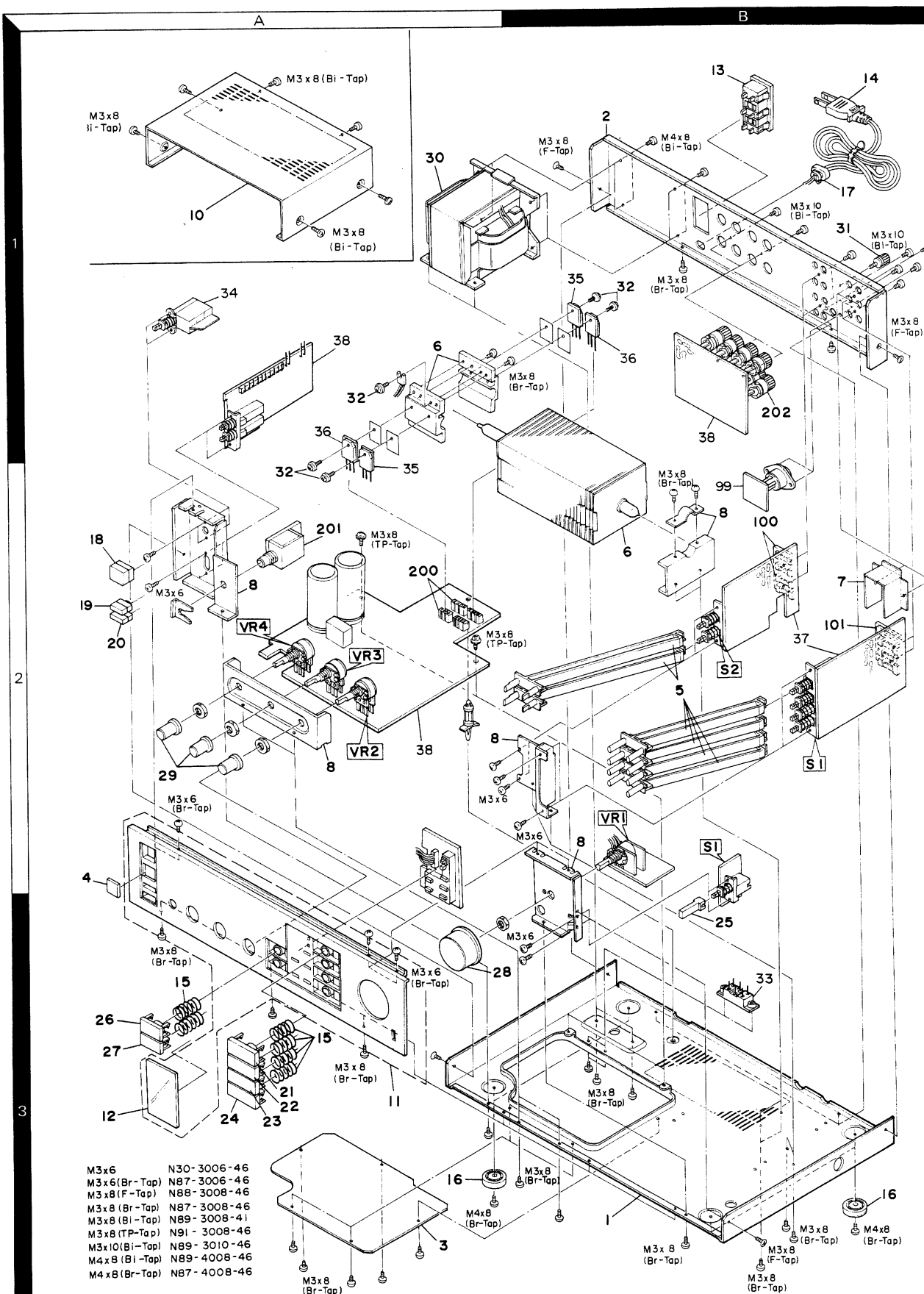
1. Tourner le réglage du volume à fond de course vers la gauche.
2. Relier un voltmètre pour courant continu aux deux broches du R29 (R30) de l'appareil audio (X09-1800-10). (Se reporter à l'illustration ci-dessous.)
3. Mettre le circuit sous tension et attendre cinq minutes.
4. Régler le VR5 (VR6) de façon que le voltmètre indique 18 à 22 mV.

Remarque:

Etant donné qu'une conduite de chaleur est incluse dans le radiateur du KA-5X, s'assurer que l'appareil repose sur une surface plane avant de procéder au réglage.

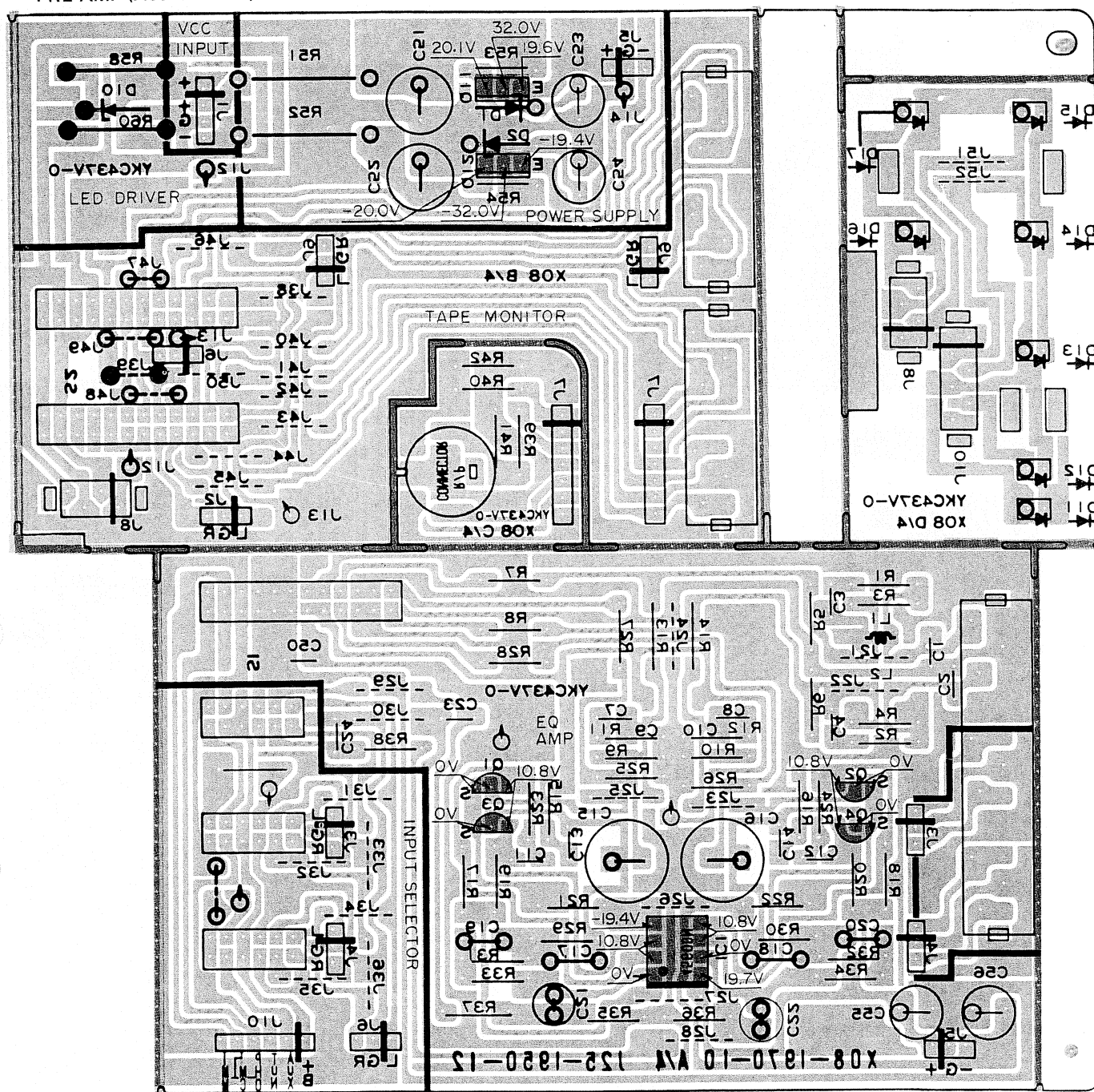


EXPLODED VIEW



PC BOARD

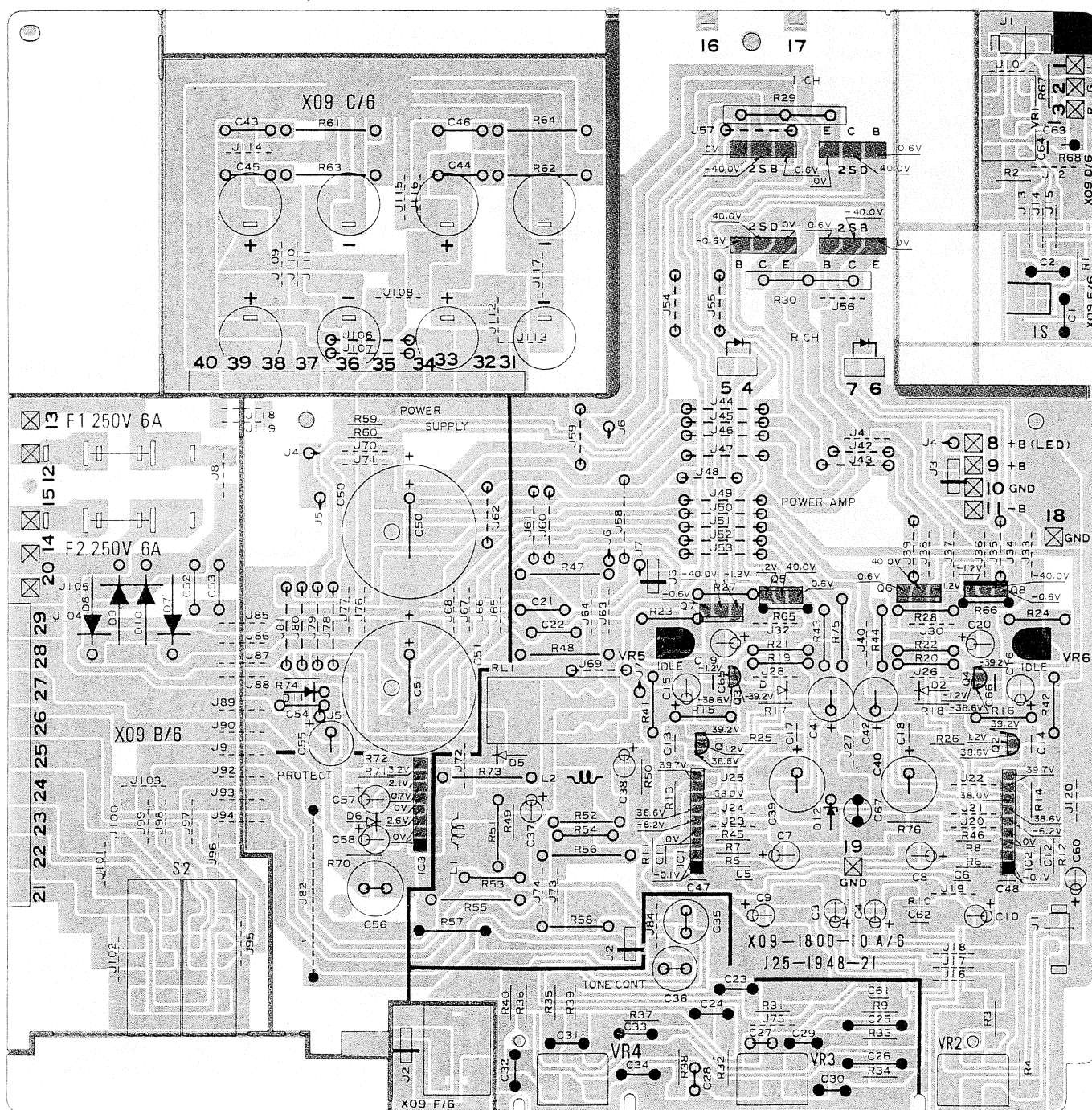
PRE AMP (X08-1970-10) Foil side view



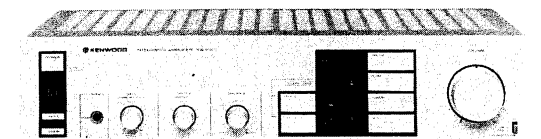
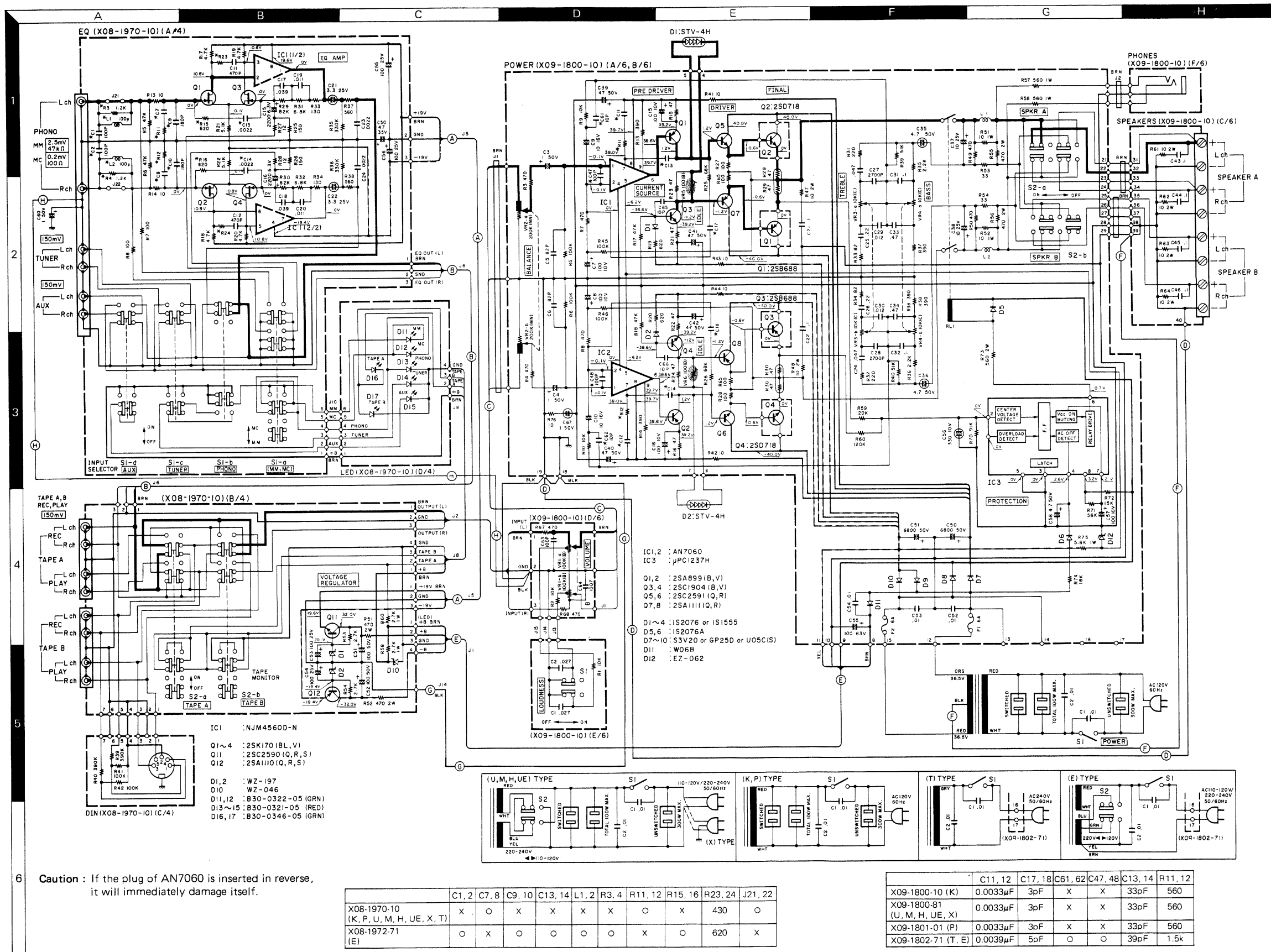
Refer to the schematic diagram for the values of resistors and capacitors.
The PC board drawing is viewed from the side easy to check.

PC BOARD

AUDIO AMP (X09-1800-10) Component side view



Refer to the schematic diagram for the values of resistors and capacitors.
The PC board drawing is viewed from the side easy to check.



SPECIFICATIONS

AUDIO SECTION

Rated Power Output

8 ohms at 20 Hz to 20 kHz
no more than 0.03% THD (FTC) 45 W + 45 W
4 ohms at 63 Hz to 12.5 kHz
no more than 0.7% THD (IEC) 55 W + 55 W

Total Harmonic Distortion
Rated Power Output into 8 ohms 0.03%
Intermodulation Distortion 0.03%
Frequency Response 8 Hz ~ 100 kHz
- 3 dB

S/N Weighted: Rated Output Power (IEC-A)

() = Unweighted at 50 mW (DIN)

Phono MM 86 dB (59 dB)

Phono MC 69 dB

Tuner, Aux, Tape 105 dB (59 dB)

Damping Factor at 8 ohms, 100 Hz 400

Input Sensitivity/Impedance

Phono MM 2.5 mV/47 kΩ

Phono MC 0.2 mV/100 Ω

Tuner, Aux, Tape 150 mV/47 kΩ

Tone Control

Bass, Turnover Freq. 400 Hz ± 10 dB at 100 Hz

Treble, Turnover Freq. 3 kHz ± 10 dB at 10 kHz

Loudness Control (-30 dB) + 10 dB at 100 Hz

GENERAL

Power Consumption (IEC) 310 W

Dimensions W: 440 mm

H: 109 mm

D: 340 mm

Weight (Net) 7.2 kg

Kenwood follows a policy of continuous advancements in development. For this reason specifications may be changed without notice.

Kenwood poursuit une politique de progrès constants en ce qui concerne le développement. Pour cette raison, les spécifications sont sujettes à modifications sans préavis.

Kenwood strebt ständige Verbesserungen in der Entwicklung an. Daher bleiben Änderungen der technischen Daten jederzeit vorbehalten.

2SA899
2SA1110
2SC2590
2SC1904

2SA1111
2SC2591

2SB688
2SD718

2SK170

NJM4560D-N

AN7060

μPC1237H

- DC voltages are measured by a VOM of 20kΩ/V input impedance.
- Les tensions de courant continu sont mesurées par un multimètre d'une impédance d'entrée de 20kΩ/V.
- Die Gleichstrom-Spannungen werden durch ein Vielfachmeßgerät von 20kΩ/V Eingangs-Impedanz gemessen.

KA-5X

PARTS LIST

Parts without Parts No. are not supplied.

Les articles non Parts No. sont ne pas fournis.

Teile ohne Parts No. werden nicht geliefert.

★ : New parts

Ref. No. 参照番号	Parts No. 部品番号	Description 部品名 / 規格	Re- marks 備考
KA-5X			
1 3B	NO STOCK	MAIN CHASSIS	
2 1B	NO STOCK	REAR PANEL	
3 3A	NO STOCK	BOTTOM PLATE	
4 2A	NO STOCK	DRESSING PLATE	
5 2B	NO STOCK	EXTENSION SHAFT	
6 1A,2B	NO STOCK	HEAT SINK	
7 2B	NO STOCK	SHIELDING CASE	
8 2A,2B	NO STOCK	MOUNTING HARDWARE	
10 1A	A01-0421-02	METALLIC CABINET	
11 3A	A20-3111-02	FRONT PANEL ASSY	*KP UM
11 3A	A20-3111-02	FRONT PANEL ASSY	HXE UE
11 3A	A20-3112-02	FRONT PANEL ASSY	T
-	B46-0055-30	WARRANTY CARD	P
-	B46-0060-00	WARRANTY CARD	T
-	B46-0061-30	WARRANTY CARD	K
-	B46-0062-30	WARRANTY CARD	UH UE
-	B46-0063-13	WARRANTY CARD (MILITARY)	UH
-	B46-0063-13	WARRANTY CARD (MILITARY)	UE
-	B46-0064-20	WARRANTY CARD	X
-	B46-0076-03	WARRANTY CARD	E
-	B50-3474-00	INSTRUCTION MANUAL	*K
-	B50-3475-00	INSTRUCTION MANUAL	*P UM
-	B50-3475-00	INSTRUCTION MANUAL	HX UE
-	B50-3476-00	INSTRUCTION MANUAL	*P MX
-	B50-3477-00	INSTRUCTION MANUAL	*M
-	B50-3478-00	INSTRUCTION MANUAL	*T
-	B50-3479-00	INSTRUCTION MANUAL	*E
-	B59-0018-00	SERVICE STATIONS LIST	UH
-	B59-0018-00	SERVICE STATIONS LIST	UE
12 3A	B10-0320-04	FRONT GLASS	
C1 ,2	C91-0023-05	CERAMIC 0.01UF AC250V	UM
C1 ,2	C91-0023-05	CERAMIC 0.01UF AC250V	UE
C1 ,2	C91-0023-05	CERAMIC 0.01UF AC250V	HX
C1 ,2	C91-0079-05	CERAMIC 0.01UF AC125V	KP
C1 ,2	C91-0079-05	CERAMIC 0.01UF AC125V	TE
13 1B	E03-0045-05	AC OUTLET	P
13 1B	E03-0046-05	AC OUTLET	KUMHX UE
14 1B	E30-0181-05	POWER CORD	KP
14 1B	E30-0459-05	POWER CORD	E
14 1B	E30-0587-15	POWER CORD	T
14 1B	E30-0649-05	POWER CORD	X
14 1B	E30-0683-05	POWER CORD	UMH UE
15 3A	G01-0453-04	COIL SPRING	
-	H01-3363-04	CARTON BOX	*KPUMHX UE
-	H01-3364-04	CARTON BOX	*T
-	H10-1601-02	POLYSTYRENE FIXTURE	*
-	H12-0090-04	PACKING FIXTURE	*
-	H20-0452-04	COVER (450X230X350)	
-	H25-0078-04	BAG (235X315)	
16 3A,3B	J02-0118-04	FOOT	X
17 1B	J41-0024-15	BUSHING	UMHTE UE
17 1B	J41-0033-05	BUSHING	KP
17 1B	J41-0034-05	BUSHING	
18 2A	K27-0683-04	KNOB (POWER)	
19 2A	K27-0684-04	KNOB (SPEAKER A)	
20 2A	K27-0685-04	KNOB (SPEAKER B)	
21 3A	K27-0688-03	KNOB (MM,MC)	
22 3A	K27-0689-03	KNOB (PHONE)	

E : Scandinavia & Europe H : Audio Club K : USA P : Canada

S : South Africa T : England U : PX (Far East, Hawaii)

UE : AAFES (Europe) X : Australia M : Other Areas

KA-5X

KA-5X

PARTS LIST

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★ : New parts

Ref. No. 参照番号	Parts No. 部品番号	Description 部品名 / 規格	Re- marks 備考
D1 ,2	V11-4100-30	WZ-197	
D10	V11-4112-00	WZ-046	
IC1	V30-0344-40	NJM45600-N	
Q1 -4	V09-0158-20	2SK170(BL)	
Q11	V03-2590-30	2SC2590(Q,R,S)	
Q12	V01-1110-30	2SA1110(Q,R,S)	
AUDIO AMP (X09-1800-10)			
C1 ,2	C46-1727-35	MYLAR 0.027UF J	
C3 ,4	C25-1710-57	LL-ELEC 1UF 50WV	
C5 ,6	C71-1782-05	CERAMIC 82PF J	
C7 ,8	C24-1010-77	ELECTRO 100UF 10WV	
C9 ,10	C24-1210-67	ELECTRO 10UF 16WV	
C11 ,12	C52-1733-26	CERAMIC 0.0033UF K	KP UM
C11 ,12	C52-1733-26	CERAMIC 0.0033UF K	HX UE
C11 ,12	C52-1739-26	CERAMIC 0.0039UF K	TE
C13 ,14	C71-1733-05	CERAMIC 33PF J	KP UM
C13 ,14	C71-1733-05	CERAMIC 33PF J	HX UE
C13 ,14	C71-1739-05	CERAMIC 39PF J	TE
C15 ,16	C24-1010-77	ELECTRO 100UF 10WV	
C17 ,18	C71-1703-01	CERAMIC 3PF C	KP UM
C17 ,18	C71-1703-01	CERAMIC 3PF C	HX UE
C17 ,18	C71-1705-01	CERAMIC 5PF C	TE
C21 ,22	C46-1710-46	MYLAR 0.1UF K	
C23 ,24	C46-1747-35	MYLAR 0.047UF J	
C25 ,26	C46-1722-45	MYLAR 0.22UF J	
C27 ,28	C46-1727-25	MYLAR 0.0027UF J	
C29 ,30	C46-1712-35	MYLAR 0.012UF J	
C31 ,32	C91-0608-05	MYLAR 0.1UF K	*
C33 ,34	C91-0609-05	MYLAR 0.47UF J	*
C35 ,36	C26-1747-57	NP-ELEC 4.7UF 50WV	
C37 ,38	C24-1410-67	ELECTRO 10UF 25WV	
C39 ,42	C24-1747-67	ELECTRO 47UF 50WV	
C43 ,46	C46-1710-46	MYLAR 0.1UF K	
C47 ,48	C71-1710-15	CERAMIC 100PF J	TE
C50 ,51	C90-0366-05	ELECTRO 6800UF 50WV	
C52 ,54	C54-2710-39	CERAMIC 0.01UF P	
C55	C24-1710-77	ELECTRO 100UF 50WV	
C56	C26-1033-77	NP-ELEC 330UF 10WV	
C57	C24-1010-77	ELECTRO 100UF 10WV	
C58	C24-1747-57	ELECTRO 4.7UF 50WV	
C61 ,62	C71-1710-02	CERAMIC 10PF D	TE
C63 ,64	C71-1710-15	CERAMIC 100PF J	
C65 ,66	C71-1710-02	CERAMIC 10PF D	
C67	C26-1710-57	NP-ELEC 1UF 50WV	
200 2A	E02-0006-05	SOCKET	
201 2A	E11-0093-05	PHCNE JACK	
202 1B	E20-0812-05	SPEAKER TERMINAL	
F1 ,2	F05-6021-05	FUSE	UMHX UE
F1 ,2	F05-6027-05	FUSE	KP
F1 ,2	F05-6322-05	FUSE	TE
-	J13-0041-05	FUSE HOLDER	KPUMHX UE
-	J13-0054-05	FUSE HOLDER	TE
L1 ,2	L39-0085-05	COIL	
R15 ,16	R43-1247-05	FL-PROOF RD47 J 2E	
R19 ,20	R43-1262-15	FL-PROOF RD620 J 2E	
R21 ,24	R43-1247-05	FL-PROOF RD47 J 2E	
R27 ,28	R43-1210-15	FL-PROOF RD100 J 2E	
R29 ,30	R90-0186-05	MULTI-COMP 0.47X2 K 3H	
R41 -44	R43-1210-05	FL-PROOF RD10 J 2E	
PRE AMP (X08-1970-10)			
D11 ,12	B30-0322-05	LED (GRN)	
D13 -15	B30-0321-05	LED (RED)	
D16 ,17	B30-0346-05	LED (GRN)	*
C1 ,2	C71-1710-15	CERAMIC 100PF J	E MH
C7 ,8	C71-1710-15	CERAMIC 100PF J	KPU XT UE
C7 ,8	C71-1710-15	CERAMIC 100PF J	E
C9 ,10	C71-1718-15	CERAMIC 180PF J	
C11 ,12	C71-1747-15	CERAMIC 470PF J	
C13 ,14	C52-1722-26	CERAMIC 0.0022UF K	E
C15 ,16	C24-0822-87	ELECTRO 2200UF 6.3WV	
C17 ,18	C46-1739-35	MYLAR 0.039UF J	
C19 ,20	C46-1711-35	MYLAR 0.011UF J	
C21 ,22	C26-1433-57	NP-ELEC 3.3UF 25WV	
C23 ,24	C46-1722-25	MYLAR 0.0022UF J	
C50	C24-6547-57	ELECTRO 4.7UF 35WV	
C51 ,52	C24-1710-77	ELECTRO 100UF 50WV	
C53 -56	C24-1410-77	ELECTRO 100UF 25WV	
C60	C24-1710-57	ELECTRO 1UF 50WV	
99 2B	E06-0510-05	DIN CONNECTOR	
100 2B	E13-0432-05	PHONO JACK	
101 2B	E13-0618-05	PHONO JACK	
L1 ,2	L40-1011-43	INDUCTOR	E
R51 ,52	R47-5547-15	FL-PROOF RS470 J 3D	
R58	R47-5427-25	FL-PROOF RS2.7K J 3A	
R60	R47-5427-25	FL-PROOF RS2.7K J 3A	
S1	S42-4019-05	PUSH SW (INPUT-SELECTOR)	*
S2	S42-2057-05	PUSH SW (TAPE-MONITOR)	*

E : Scandinavia & Europe H : Audio Club K : USA P : Canada

S : South Africa T : England U : PX (Far East, Hawaii)

UE : AAFES (Europe) X : Australia M : Other Areas

Ref. No. 参照番号	Parts No. 部品番号	Description 部品名 / 規格	Re- marks 備考
R47 ,48	R47-5510-05	FL-PROOF RS10 J 3D	
R51 ,52	R47-5410-05	FL-PROOF RS10 J 3A	
R53 ,54	R43-1233-05	FL-PROOF RC33 J 2E	
R55 ,56	R47-5547-15	FL-PROOF RS470 J 3D	
R57 ,58	R47-5456-15	FL-PROOF RS560 J 3A	
R61 -64	R47-5510-05	FL-PROOF RS10 J 3D	
R65 ,66	R42-1210-15	FL-PROOF RD100 J 2E	
R73	R47-5556-15	FL-PROOF RS560 J 3D	
R75	R47-5456-25	FL-PROOF RS5.6K J 3A	
VR1	R06-5057-05	POTENTIOMETER 100KB	
VR2	RC6-5079-05	POTENTIOMETER 200K	*
VR3 ,4	R06-3026-05	POTENTIOMETER 10K	*
VR5 ,6	R12-0077-05	TRIMMING POT. 100	
RL1	S51-4040-05	RELAY	
S1	S40-2122-05	PUSH SWITCH (LOUDNESS)	
S2	S42-2058-05	PUSH SWITCH (SP-SEL)	*
D1 ,2	V11-0271-05	1S2076	
D5 ,6	V11-0273-05	1S2076A	
D7 -10	V11-1300-10	S3V20	
D11	V11-0295-05	W06B	
D12	V11-4112-40	EZ-062	
IC1 ,2	V30-0669-10	AN7060	*
IC3	V30-0678-10	UPC1237H	
Q1 ,2	V01-0199-05	2SA899(B,V)	
Q3 ,4	V03-0460-05	2SC1904(B,V)	
Q5 ,6	V03-2591-10	2SC2591(Q,R)	
Q7 ,8	V01-1111-10	2SA1111(Q,R)	

A product of

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